

The Importance of School Gardens as Perceived by Florida Elementary School Teachers

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SUMMARY. While gardening is the number one hobby in the United States, elementary schools are just beginning to explore the use of school gardens as a means to enhance classroom learning. School gardens can reinforce classroom instruction by offering opportunities for experiential learning. The benefits of experiential learning allow for a better understanding of concepts as the hands-on approach provides meaningful and tangible experiences. While many teachers have anecdotally attested to

the benefits of school gardens, there is little empirical evidence documenting their impact. In Fall 1997, the University of Florida hosted a competition for the best elementary school garden in Florida. Results from a research questionnaire completed by participating teachers indicated that teachers used school gardens infrequently, with the majority using the garden as an instructional tool no more than 10% of the time. Many teachers did, however, indicate that school gardens were used for environmental education (97.1%) and experiential learning (72.9%), and 84.3 % of teachers said that related activities enhanced student learning. Findings also indicate that the teachers surveyed had relatively new gardens and teachers lacked, or were unaware of educational resources to assist with garden learning. This paper describes and interprets the results of the teacher questionnaire.

Gardening is the most popular hobby in the United States, with an industry worth \$22 billion annually (Peysen and Weingarten, 1998). While the general public has embraced gardening for years, America's schools are just beginning to do the same. School gardens provide a hands-on learning environment that may help improve the understanding of subjects taught using traditional classroom instruction (Barron, 1993; Bradley and Skelly, 1997; Bowen, 1989; Canaris, 1995; Kutsumai, 1994; Ocone and Pranis, 1983). Gardening can facilitate student interaction with teachers, parents, and volunteers, primarily through growing plants and discovering the relationships between people, plants and wildlife (Alexander et al., 1995). The school garden may also serve as a

resource to teach science-related subjects and allow students to learn in an environment quite unlike established classrooms. Additionally, a school garden, if used properly can be a tool to teach a multitude of subjects ranging from traditional science, to math, history, art and language arts (Eames-Sheavly, 1994). School gardens can also promote active and experiential learning through lessons and activities that are taught with the garden (Mabie and Baker, 1996). Studies have shown that active and experiential learning enhances students' knowledge levels (McCormick et al., 1989; Meichtry, 1992; Harvey, 1989). Through hands-on learning and active participation in the learning process that students may experience in a school garden, students' learning may become more meaningful. While there is anecdotal support that praises the merits and the benefits of a school garden for students (Barron, 1993; Bowen, 1989; Canaris, 1995; Kutsumai, 1994), little research has been conducted to determine the benefits of school gardens to students. This paper is intended to address the perceptions teachers have of school gardens and the role these perceptions play in the use and success of school gardens.

In Fall 1997, researchers at the University of Florida (UF) hosted a school garden competition. The goal of the competition was to promote the use of school gardens and reward schools that had outstanding school gardens. Researchers at UF conducted a research study with participating schools to explore the benefits of school gardens to students.

Materials and methods

In 1997, 35 schools, including 71 teachers, entered the competition and agreed to participate in the study. Teachers from participating schools were asked to voluntarily complete an anonymous questionnaire about their garden programs to be returned to UF at the end of their school term. The questionnaire, written by the authors, contained 18 close-ended and partially close-ended questions. Questions surveyed the amount of time students spent in the garden, the amount of time the garden was used as a classroom tool, the type of garden, and other questions relating to the garden program. The questionnaire was designed to gain an understanding of the

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importance of school gardens and how they were being used at participating schools. The data were analyzed with SPSS (Statistical Package for the Social Sciences, 1999). Descriptive statistics, including frequencies and percentages were computed for each question on the questionnaire to determine data trends.

Results and discussion

Seventy-one Florida elementary school teachers representing schools throughout the state completed the questionnaires. The most common gardens used in schools were flower gardens (84.3%) and vegetable gardens (71.4%), with additional popular garden types including butterfly and herb gardens (Table 1). Follow-up interviews with several teachers revealed

that some schools were using vegetable and butterfly gardens to supplement science lessons while flower gardens were being used to enhance their schoolyard or classroom building.

The majority of the teachers (67.6%) indicated that their students spent an average of 1 hour in the garden per week (Table 1). The remaining teachers (16.9%) indicated that their students spent 2 to 3 hours in the garden and 15.4% of teachers indicated that their students spent between 4 and 8 h in the garden each week. These results indicate that while the participating schools may have gardens, most were not being used very often. A large percentage of teachers (60.5%) indicated that the garden was being used as an instructional tool either 10% or less than 10% of the time

(Table 1). While 39.4% of teachers indicated that the garden was used at least 20% of the time as an instructional tool, most teachers indicated that they were using the garden minimally. Teachers may not have, or were unaware of available resources (Eames-Sheavly, 1993; Jaffe and Appel, 1990; Ocone and Pranis, 1983; Skelly and Zajicek, 1997; Waliczek and Zajicek, 1996) on incorporating gardens into existing lessons and, hence, failed to effectively use the garden as a teaching tool. Furthermore, Spooner and Simpson (1979) reported that neutral or negative attitudes towards science itself might be why elementary school teachers tend to teach little or no science, leaving little opportunity for using the garden as a tool to teach science.

Table 1. Results of a school garden questionnaire completed by Florida elementary school teachers.

Question	Percentage ^z (N = 71)
Type of garden at school	
Flower	84.3
Vegetable	71.4
Butterfly	41.4
Herb	39.4
Amount of time students spend in garden (hours per week)	
1	67.6
2-3	16.9
4-5	2.8
6-7	1.4
7-8	4.2
Other	7.0
Amount of time the garden is used by teachers in the classroom	
<10%	23.9
10%	36.6
20%	19.7
30%	8.5
40%	4.2
50%+	7.0
Reasons teachers use a school garden	
Environmental education	97.1
Helps students learn better	84.3
Experiential learning	72.9
Personal love of gardening	67.1
Encouraged by the administration	54.3
Number of years the garden had been established at the school	
6 months or less	42.2
1-1.5	26.8
2-3	26.8
4+	4.2
Sources of school garden funding	
Donations	69.9
Personal funds	52.1
Garden grants	49.3
School funds	27.4

^zPercentages are not cumulative.

When asked what the garden was used for, all but two of the teachers (97.1%) indicated that they used the garden for environmental education and 72.9% indicated that the garden was used for experiential learning (Table 1). Eighty-four percent of the teachers felt that the garden helped students learn better.

Perhaps one of the most important reasons that the teachers surveyed were not using school gardens very often was the length of time the garden had been established. A large number (42.2%) of school gardens used by teachers in this study had been established for 6 months or less, with 69% of the gardens in establishment less than a year and a half (Table 1). With many of the gardens being established and put to use for a year or less, teachers may not have had the opportunity to use and incorporate the garden into their classroom instruction. Additionally, teachers may not yet have been comfortable with this teaching technique.

Several explanations exist as to why more teachers did not use school gardens. One explanation may be that teachers were unaware of how to successfully incorporate the garden into an already existing curriculum to enhance student learning. Another explanation comes from the expense of a garden. Teachers in this study indicated that they received donations (69.9%), grants (49.3%), and even paid for the garden with their own money (52.1%) (Table 1). Teachers noted that many of the donations came from parents as well as local garden centers. While close to half (49.3%) the teachers had received a garden grant, most of those not receiving a grant were unaware that such grant funding existed. Funding a school garden can become an expensive task and may discourage many teachers from using a garden.

Conclusions

Responses from a 1998 survey given to 71 Florida elementary school teachers indicated that school gardens are gaining popularity as a resource for educating children. Findings reveal

that, for this group of teachers, gardens were used minimally for classroom instruction. However, the length of time these gardens had been established was also minimal, with most gardens in establishment less than a year and a half. The reasons cited most often for incorporating a garden into the curriculum was for environmental education and for fostering experiential learning. While some of the results of this survey may seem discouraging to proponents of school gardening, it is important to note that, regardless of the time spent in the garden, teachers are using school gardens. It is apparent from findings in this study that teachers need to be made aware of the resources available to help them effectively integrate the garden into more classroom lessons. Integrating the garden and garden activities into classroom lessons will not only enable the teacher and the students to use the garden more, but may also enhance students' learning. It is apparent that many teachers understand the usefulness of the garden and the impact it may have on student learning. This finding helps support the belief that elementary school gardens are valuable, conceivably indicating that educators are beginning to understand the benefits of gardening to children.

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